Rezaul Karim, Ph.D.

Sr. Data Scientist, ALDI SÜD - Global Data & Analytics, Germany

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rezaul.karim.fit@gmail.com Altstraße 43, 52066 Aachen, Germany 37 years, Bangladeshi

I'm adept and experienced at analyzing large-scale datasets, developing accurate predictive models using advanced analytical methods, and implementing data-driven solutions to complex research and business problems and making them interpretable to deliver actionable insights. I'm passionate about data science, machine learning, knowledge graphs, and explainable AI (XAI).

Education

2017-2022 **PhD** in Computer Science, RWTH Aachen University, Germany
Thesis title : Interpreting Black-Box Machine Learning Models with Evidence-based Decision Rules and Knowledge Graph Reasoning
Supervisor : Prof. Dr. Stefan Decker and Prof. Dr. Dietrich Rebholz-Schuhmann
Dissertation grade : Summa Cum Laude

2010-2012 **Master of Engineering (M.Eng.)** in Computer Engineering, Kyung Hee University, South Korea
Grade : 4.038/4.30 (≈Summa Cum Laude)
Major : in data mining and knowledge discovery with minor in AI and cryptography
Thesis title : Privacy Preserving Mining Maximal Frequent Patterns in Transactional Databases
Supervisor : Prof. Dr. Byeong-Soo Jeong

2004-2008 **Bachelor of Science (B.Sc.)** in Computer Science & Engineering, University of Dhaka, Bangladesh
Major : Computer Science with minor in mathematics and statistics.
Grade : First class honours.

Working Experience

01.01.2023 – Present
Senior Data Scientist, ALDI SÜD - Global Data & Analytics, Mülheim an der, Germany
- Developing scalable analytical solutions for retail
- Research and innovations for data driven AI
- Developing interpretable ML methods and AI applications.

Spark | Scala | Hadoop | Databricks | Azure ML | scikit-learn | Spark ML | Jupyter | Spark SQL | Git

01.07.2017 – 31.12.2022
Data Scientist→Senior Data Scientist, Fraunhofer FIT, Sankt Augustin, Germany
- Developed data and knowledge-driven explainable AI solutions using applied machine learning, natural language processing (NLP), and semantic web technologies :
  - Multimodal fusion learning and predictive modelling
  - Developing interpretable ML methods and AI applications [a]
  - Constructions of domain knowledge graphs (KGs), representation learning on KGs, and application development (e.g., drug-drug interaction, neuro-symbolic AI).
- Acquiring industry and research funding (German/EU) for emerging applications of AI
- **Projects** - I was involved in leading work packages and application development :
  - `Crypto4GraphAI` - developed privacy-preserving machine/deep learning primitives for cybersecurity and supply chain knowledge graphs.
  - `DEMETER` - developed quality assessment tools for linked data and performed predictive modelling for yield prediction and weed detection from UAV images for smart precision farming.
  - `NFDI4DataScience` - contributed to data integration and construction of biomedical KGs and representation learning on top them.
  - `Personal Health Train` - distributed deep learning on privacy-sensitive healthcare data.

a. Some quick demo : `http://xai.fit.fraunhofer.de:5000/`

Python | Scala | Java | Spark ML/SQL | NumPy | Pandas | OpenCV | Keras | PyTorch | scikit-learn | MLFlow | SHAP | LIME | AutoML | Apache Zeppelin | Jupyter | Docker | Flask | Dashboard | Semantics | Knowledge Graphs | Git

01.10.2021 – Current

Postdoctoral Researcher (Part-time), RWTH Aachen University, Germany

- Research in explainable AI, applied machine learning, and semantic web with focus on healthcare, NLP, and computer vision
- Acquiring industry and research funding (German/EU) for emerging applications of AI
- Teaching-related activities with Prof. Dr. Stefan Decker
- Supervision bachelor and master theses.

30.05.2017 – 03.06.2015

Machine Learning Engineer, Insight Centre for Data Analytics, Galway, Ireland

- Bioinformatics research (e.g., cancer genomics and text mining).
- Data integration and construction of biomedical knowledge graphs.
- Development of NLP applications and text mining tools.

Spark | Scala | Hadoop | Java | scikit-learn | Spark ML | DeepLearning4j | Jupyter | Docker | Spark SQL | Git

29.05.2015 – 30.08.2012

Senior Software Engineer→Lead Software Engineer, Samsung Electronics, South Korea

- Led the Android Camera & Music team for Middle East & Africa (MEA) region.
- Feature development, software release, and customer-specific customization (CSC) for Voice Recorder, text-to-speech (TTS), & S-Voice applications.
- Worked as Field Test Engineer (in Turkey) and User Interface Test Engineer (in Korea) to support R & D to identify network outages for the MEA customers.

Java | C | C++ | Perforce | Android | Tizen | CI/CD | Hudson | Gradle | Eclipse | Maven

03.09.2009 – 26.08.2010

Software Engineer, i2Soft Technology, Dhaka, Bangladesh

- Web application development with cross-browser compatibility
- ERP-based web services and desktop-based software development
- Module-wise technical documentation for the developed services

JavaScript | JQuery | HTML | CSS | PHP | MySQL | Oracle | REST

Technical Skills

Machine/deep learning models/algorithms	SVM, XGBoost, Random Forest, K-Means, DBSCAN, CNN, Autoencoders, RNN, BERTs
Model deployment, monitoring, MLOps	Flask, Streamlit, MLFlow
Data science tools and libraries	NumPy, Pandas, Spark ML/SQL, scikit-learn, Keras, PyTorch, DeepLearning4j
Containerization technologies	Docker
Semantic Web technologies	RDF, SPARQL, Apache Jena, OWL, ontology, RDF4J, Virtuoso, Knowledge Graphs
Programming languages	Python, Java, Scala
CI/CD, version control	Git
Cloud platforms	Amazon AWS, Google Cloud, Azure ML.
Big data stack	Spark, Hadoop, Databricks
XAI toolkits	SHAP, LIME, ExplainerDashboard, ELI5
Databases	Oracle, MySQL, PostgreSQL, MongoDB
AutoML	Auto-sklearn, Auto-Keras, Auto-PyTorch, PyCaret, TPOT

Academic and Professional Achievements

1. **ICT Young Researcher Award 2020** : I won the prestigious RWTH Aachen University ICT Young Researcher Award 2020 for my significant contributions to ICT-related research that have increased the international visibility of both RWTH Aachen University and Fraunhofer FIT. I was awarded with a research grant of 1,500€ and a certificate. My contributions include scientific publications (e.g., AI/ML workshops, conferences, and journals), and theses supervision (bachelor, master), open-source, and voluntary services (e.g., served PC members and reviewers for international workshops, journals, and conferences).
2. **Best Paper Award** : My paper "Classification Benchmarks for Under-resourced Bengali Language based on Multichannel Convolutional-LSTM Network" received the best application paper award and a research grant of 500$ at IEEE International Conference on Data Science and Advanced Analytics (DSAA - core A ranked conference), Sydney, Australia, October, 2020.
3. **Employee of the Month** : I was awarded as the best employee for December 2014 for my outstanding contributions to Samsung Electronics. My contributions included : i) new feature development and improvement of 140+ Android model development and OS upgrade projects (Audio Framework, Voice Recorder, Text-to-speech (TTS), and S-Voice applications), ii) submissions of 17 ideas in Samsung's Idea Open Space and discovery-of-in-closure for mobile, display, and wearable devices, and iii) worked on software release and customer specific customization of several commercialization projects.

Selected Publications

1. **Md. Rezaul Karim**, Oya Beyan, Achille Zappa, Ivan G. Costa, Dietrich Rebholz-Schuhmann, Michael Cochez, and Stefan Decker, "Deep Learning-based Clustering Approaches for Bioinformatics", *Briefings in Bioinformatics*, February, 2020.
   https://academic.oup.com/bib/advance-article/doi/10.1093/bib/bbz170/5721075
   https://github.com/rezacsedu/Deep-learning-for-clustering-in-bioinformatics

2. **Md. Rezaul Karim**, Md. Shajalal, Alex Graß, Till Döhmen, Sisay Adugna Chala, Christian Beecks, and Stefan Decker, "Interpreting Black-box Machine Learning Models for High Dimensional Datasets", under review at *IEEE Transactions on Neural Networks and Learning Systems*, January, 2023.
   https://github.com/AwesomeDeepAI/DeepExplainHidim

3. **Md. Rezaul Karim**, Felix Hermsen, Sisay Adugna Chala, and Avikarsha Mandal, "Catch Me If You Can : Semi-supervised Graph Learning for Spotting Money Laundering", under review at *The Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)*, November, 2022.
   https://github.com/AwesomeDeepAI/DeepExplainHidim

4. **Md. Rezaul Karim**, Oya Beyan, Dietrich Rebholz-Schuhmann, Michael Cochez, and Stefan Decker, "Explainable AI for Bioinformatics : Methods, Tools, and Applications", under review at *Briefings in Bioinformatics*, February, 2023.
   https://github.com/rezacsedu/Deep-learning-for-clustering-in-bioinformatics

5. **Md. Rezaul Karim**, Michael Cochez, Oya Beyan, Stefan Decker, and Christoph Lange-Bever, "OncoNetExplainer : Explainable Predictions of Cancer Types Based on Gene Expression Data", Proc. of *IEEE International Conference on Bioinformatics and Bioengineering (BIBE'2019)*, Athens, Greece, October 28-30, 2019.
   https://ieeexplore.ieee.org/document/8941872
   https://github.com/rezacsedu/Explainable-cancer-type-prediction

6. **Md. Rezaul Karim**, Michael Cochez, Mamtaz Uddin, Oya Beyan, and Stefan Decker, "Drug-Drug Interaction Prediction Based on Knowledge Graph Embeddings and Convolutional-LSTM Network", Proc. of *ACM International Conference on Bioinformatics, Computational Biology, and Health-informatics (ACM-BCB'2019)*, Niagara Falls, New York, USA, September 7-10, 2019.
   https://dl.acm.org/doi/10.1145/3307339.3342161
   https://github.com/rezacsedu/Drug-drug-interaction-prediction

7. **Md. Rezaul Karim**, Tanhim Islam, Dietrich-Rebholz Schuhmann, and Stefan Decker, "Adversary-aware Multimodal Neural Networks for Cancer Diagnosis based on Multi-omics Data", *IEEE Access*, Page(s) : 54386 - 54409, 17 May 2022.
   https://github.com/rezacsedu/Adversary_Aware_Multimodal_Neural_Networks

8. **Md. Rezaul Karim**, Michael Cochez, Oya Beyan, and Stefan Decker, "Mining Maximal Frequent Patterns in Big Transactional Databases and Dynamic Data Streams : A Spark Based Approach", *Information Sciences*, Vol-432, pp 278-300, March 2018.
   https://www.sciencedirect.com/science/article/pii/S002002551731126X
   https://github.com/rezacsedu/Mining-Maximal-Frequent-Pattern-Spark

9. **Md. Rezaul Karim**, Ashiqur Rahman, João Bosco Jares, Stefan Decker, and Oya Beyan, "A Neural Ensemble Method for Cancer Type Prediction Based on Copy Number Variations", *Neural Computing and Applications*, November 30, 2019.
   https://link.springer.com/article/10.1007/s00521-019-04616-9
   https://github.com/rezacsedu/Neural-ensemble-method-for-cancer-prediction

10. **Md. Rezaul Karim**, Galih Wicaksono, Ivan G. Costa, Stefan Decker, and Oya Beyan, "Multimodal Autoencoders for Prognostically Relevant Subtypes and Survival Prediction for Breast Cancer", *IEEE Access*, September 2019.
    https://ieeexplore.ieee.org/document/8839793
    https://github.com/rezacsedu/Multimodal-autoencoder-for-breast-cancer

11. Lars C. Gleim, **Md. Rezaul Karim**, Lukas Zimmermann, Oliver Kohlbacher, Holger Stenzhorn, Stefan Decker, and Oya Beyan, "Enabling Ad-hoc Reuse of Private Data Repositories through Schema Extraction", *Journal of Biomedical Semantics*, volume 11, Article number : 6 (2020), July 8 2020.
    https://jbiomedsem.biomedcentral.com/articles/10.1186/s13326-020-00223-z
    https://github.com/PersonalHealthTrainGermany/schemaExtraction

12. **Md. Rezaul Karim**, Audrey Michel, Achille Zappa, Pavel Baranov, Ratnesh Sahay, and Dietrich Rebholz-Schuhmann, "Improving Data Workflow Systems with Cloud Services and Use of Open Data for Bioinformatics Research", *Briefings in Bioinformatics*, Vol-19, Issue 5, September 2018, Pages 1035–1050, DOI : 10.1093/bib/bbx039.
    https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6169675/pdf/bbx039.pdf

13. Alokkumar Jha, Yasar Khan, Muntazir Mehdi, **Md Rezaul Karim**, Qaiser Mehmood, Achille Zappa, Dietrich Rebholz-Schuhmann, and Ratnesh Sahay, "Discovering Biomarker and Pathway for Gynecological Cancers", *Journal of Biomedical Semantics*, 8(1), September 2017, DOI : 10.1186/s13326-017-0146-9.
    https://jbiomedsem.biomedcentral.com/articles/10.1186/s13326-017-0146-9

14. **Md. Rezaul Karim**, Michael Cochez, Oya Beyan, Dietrich-Rebholz Schuhmann, and Stefan Decker, "Convolutional Embedded Networks for Population Scale Clustering and Bio-ancestry Inferencing", *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, Volume-19, Page(s) : 369-382, February, 2022.
    https://ieeexplore.ieee.org/document/9095229
    https://github.com/rezacsedu/Convolutional-embedded-networks

15. **Md. Rezaul Karim**, Jiao Jiao, Till Döhmen, Michael Cochez, Oya Beyan, Dietrich-Rebholz Schuhmann, and Stefan Decker, "DeepKneeExplainer : Explainable Knee Osteoarthritis Diagnosis from Radiographs and Magnetic Resonance Imaging", *IEEE Access*, Volume-9, Page(s) : 39757 - 39780, 26 February 2021.
    https://ieeexplore.ieee.org/document/9363889
    https://github.com/rezacsedu/DeepKneeOAExplainer_

16. **Md. Rezaul Karim**, Till Döhmen, Michael Cochez, Oya Beyan, Dietrich Rebholz-Schuhmann, and Stefan Decker, "DeepCOVIDExplainer : Explainable COVID-19 Diagnosis from Chest X-ray Images", Proc. of *IEEE International Conference on Bioinformatics and Biomedicine (BIBM'2020), Seoul, South Korea, December 16-19, 2020*.
    https://arxiv.org/abs/2004.04582
    https://github.com/rezacsedu/DeepCOVIDExplainer

17. **Md. Rezaul Karim**, Bharathi Raja Chakravarti, Mihael Arcan, John P. McCrae, and Michael Cochez, "Classification Benchmarks for Under-resourced Bengali Language based on Multichannel Convolutional-LSTM Network", Proc. of *IEEE International Conference on Data Science and Advanced Analytics (DSAA'2020)*, Sydney, Australia, October 2020.
    https://arxiv.org/abs/2004.07807
    https://github.com/rezacsedu/Classification_Benchmarks_Benglai_NLP

18. **Md. Rezaul Karim**, Sumon Kanti Dey, Tanhim Islam†, Sagor Sarker, Mehadi Hasan Menon, Kabir Hossain, Md. Azam Hossain, and Stefan Decker, "DeepHateExplainer : Explainable Hate Speech Detection in Under-resourced Bengali Language", *Proc. of IEEE International Conference on Data Science and Advanced Analytics (DSAA'2021)*, Portugal, October 6-9 2021.
    https://arxiv.org/pdf/2012.14353.pdf
    https://github.com/rezacsedu/DeepHateExplainer

19. **Md. Rezaul Karim**, Sumon Kanti Dey, Tanhim Islam†, and Bharathi Raja Chakravarti, "Multimodal Hate Speech Detection from Bengali Memes and Texts", *Proc. of International conference on Speech & Language Technology for Low-resource Languages (SPELLL'2022)*, Tamil Nadu, November 23-25, 2022.
    https://arxiv.org/abs/2204.10196
    https://github.com/rezacsedu/Multimodal-Hate-Speech-Bengali

20. **Md. Rezaul Karim**, Hussain Ali, Prinon Das, Mohamed Abdelwaheb, and Stefan Decker, " Question Answering Over Biological Knowledge Graph via Amazon Alexa ", November, 2022.
    https://arxiv.org/abs/2210.06040
    https://github.com/rezacsedu/Multimodal-Hate-Speech-Bengali

21. Ashfaq Khan, **Md. Rezaul Karim**, and Yangwoo Kim, "A Two-Stage Big Data Analytics Framework with Real World Applications Using Spark Machine Learning and Long Short-Term Memory Network", *Symmetry*, 10(10) : 485, October 2018.
    https://www.mdpi.com/2073-8994/10/10/485
    https://github.com/rezacsedu/2Stage-Big-Data-Analytics-SparkML-LSTM

22. Ashfaq Khan, **Md. Rezaul Karim**, and Yangwoo Kim, "A Scalable and Hybrid Intrusion Detection System Based on Convolutional-LSTM Network", *Symmetry*, 2019, 11, 583.
    https://www.mdpi.com/2073-8994/11/4/583
    https://github.com/rezacsedu/Intrusion-Detection-Spark-Conv-LSTM

23. Oya Beyan, Ananya Choudhury, Johan van Soest, Oliver Kohlbacher, Lukas Zimmermann, Holger Stenzhorn, **Md. Rezaul Karim**, Michel Dumontier, Stefan Decker, Luiz Olavo Bonino da Silva Santos, and Andre Dekker,"Distributed Analytics on Sensitive Medical Data : The Personal Health Train", *Data Intelligence*, Vol-2 (2020), 96–107. doi:10.1162/dint_a_00032.

24. **Md. Rezaul Karim**, Binh-Phi Nguyen, Lukas Zimmermann, Toralf Kirsten, Matthias Löbe, Frank Meineke, Holger Stenzhorn, Oliver Kohlbacher, Stefan Decker, Oya Beyan, "A Distributed Analytics Platform to Execute FHIR-based Phenotyping Algorithms", *Proc. of 11th International Semantic Web Applications and Tools for Healthcare and Life Sciences (SWAT4LS 2018)*, Antwerp, Belgium, 3-6 December 2018.

25. **Md. Rezaul Karim**, Matthias Heinrichs, Lars Gleim, Michael Cochez, Emily Porter, Alessandra La Gioia, Saqib Salahuddin, Martin O'Halloran, Stefan Decker, and Oya Beyan, "Towards a FAIR Sharing of Scientific Experiments : Improving Discoverability and Reusability of Dielectric Measurements of Biological Tissues", *Proc. of 10th International Semantic Web Applications and Tools for Healthcare and Life Sciences Conference (SWAT4LS 2017)*, Rome, Italy, 4-7 December 2017.

Thesis Supervision

Together with Prof. Dr. Stefan Decker, I supervised following bachelor and master theses at RWTH Aachen University, Germany :

1. FAIR Approach for Improving Discoverability and Reusability of Research Data (Bachelor thesis, 2017)
2. Using Deep Neural Networks and Copy Number Variations for Cancer Detection (Master thesis, 2018)
3. Analysis of Breast Cancer Genomics Data with Multimodal Deep Belief Network (Master thesis, 2018).
4. Classification of Cancer with Methylation-aware Motifs (Bachelor thesis, 2019)
5. A Fully Automated Localization and Semantic Segmentation Technique for Biomedical Imaging (Master thesis, 2019)
6. Deep Learning-based Knee Osteoarthritis Diagnosis from Radiographs and MRI Images (Master thesis, 2019)
7. Revealing Black-box Biomedical Patent Classification Models with Explanation Methods (Bachelor thesis, 2020)
8. Imputation in Graphs Using Machine Learning (Master thesis, 2020)
9. Improving Human-AI Interaction via Explainable Chatbot : A Case Study for COVID-19 Diagnosis (Master thesis, 2021)
10. A Meta learning-based Approach for Automating Image Analysis in Cell Biology (Master thesis, 2022).

Merits in Teaching and Pedagogical Competence

I have contributed in preparation of lectures, exercise sessions, providing lectures, exam grading, conducting lab sessions, and supervising seminar topics for several courses offered by Prof. Dr. Stefan Decker at RWTH Aachen University, Germany (and others) :

1. Lecturer for Master in Medical Data Science Program, RWTH Aachen Academy, 2021/2022
2. Semantic Web (Winter semester, 2021/2022)
3. Knowledge Graphs Praktikum (Winter semester, 21/22 & 22/23)
4. Methods for Data Reusability (Winter semester, 2020/2021)
5. Knowledge Graphs Praktikum (Winter semester, 2020/2021)
6. Methods for Data Reusability (Winter semester, 2019/2020)
7. Knowledge Graphs Praktikum (Spring semester, 2019)
8. Knowledge Graphs Praktikum (Spring semester, 2018)
9. Object-Oriented Programming with Java (Winter, 2015/2016), University of Galway, Ireland.

Acquiring Research Grants

1. Co-acquire research grant of NFDI4DataScience ow worth 20M EUR.
2. Co-acquirer of BMBF grant of worth 5M EUR for the German-French joint project Crypto4GraphAI project
3. Research grant for best paper award of worth 500$ for best paper award at IEEE International Conference on Data Science and Advanced Analytics (DSAA), Sydney, Australia, October 2020.
4. Research grant of worth 1,500$ for for ICT Young Researcher award at RWTH Aachen University, November 2020
5. Kyung Hee University President Scholarship of worth 6,000$ spanning over 2 years (2010 - 2012).
6. Digital Ocean Cloud Computing Research grant of worth 960$ for hosting computing infrastructure for bachelor and master thesis at RWTH Aachen University.

Education and Training

1. Research Data Management, RWTH Aachen University, December 2022
2. Data Protection and Privacy (GDPR, BDSG), Fraunhofer Internal, September 2018.
3. Corruption Prevention, Fraunhofer Internal, September 2018.
4. Scientific Integrity, RWTH Aachen University, September 2021.
5. International Summer School on Deep Learning, Warsaw, Poland, July, 2019.

Research Talks

The candidate participated several conferences as the part of the journey of this thesis :

1. Research talk on Explainable AI at University of Siegen, Germany, November, 2021.
2. Presented paper titled "Drug-Drug Interaction Prediction Based on Knowledge Graph Embeddings and Convolutional-LSTM Network" at 10th *ACM International Conference on Bioinformatics and Computational Biology* (ACM-BCB), Niagara Falls, New York, USA, September 7-10, 2019.
3. Presented paper titled "Cancer Risk and Type Prediction Based on CNVs with LSTM and Deep Belief Network" at 1^{st} *Artificial Intelligence International Conference* (A2IC'2018), November 21-23, Barcelona, Spain.
4. Presented paper titled "OncoNetExplainer : Explainable Predictions of Cancer Types Based on Gene Expression Data" at 19^{th} *IEEE International Conference on Bioinformatics and Bioengineering* (BIBE 2019), October 27-30, 2019.
5. Presented paper titled "DeepCOVIDExplainer : Explainable COVID-19 Diagnosis from Chest X-ray Images". at 14^{th} *International Conference on Bioinformatics and Biomedicine (BIBM'2020)*, Seoul, South Korea, December 16-19, 2020.
6. Presented paper titled "Classification Benchmarks for Under-resourced Bengali Language with Multichannel Convolutional-LSTM Network" at *IEEE International Conference on Data Science and Advanced Analytics (DSAA)*, Sydney, October 2020.
7. Organized and gave talk for hackathon "Deep Neural Networks for Analysing Cancer Genomics Data" at *International Semantic Web Applications & Tools for Healthcare and Life Sciences* (SWAT4HCLS) Conference, Rome, Italy, 4-7 December, 2017.
8. Presented paper titled "DeepHateExplainer : ExplainableHate Speech Detection in Under-resourced Bengali Language" at 8^{th} *IEEE International Conference on Data Science and Advanced Analytics (DSAA'2021)*, Porto, Portugal, October 6-9, 2021.

Review Works (PC Members + Reviewers)

- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)
- IEEE International Conference on Data Science and Advanced Analytics (DSAA)
- The International AAAI Conference on Web and Social Media (ICWSM)
- The ACM International Conference on Web Science (WebSci)
- The International Semantic Web Conference (ISWC)
- The Extended Semantic Web Conference (ESWC)
- The Web Conference (WWW)
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- IEEE Transactions on Neural Networks and Learning Systems
- Journal of User Modeling and User-Adapted Interaction
- Journal of Expert Systems with Applications
- Journal of Briefings in Bioinformatics
- Journal of Biomedical Semantics
- Journal of Cloud Computing
- Packt Publishing Ltd. (UK)
- Journal of IEEE Access
- Semantic Web Journal.

I Contributions to open-source and reproducible science

made source-codes of my several publications open access for the research communities. Besides, I contributed to several open-source implementations, which include feature implementations, filing issues, pull request, answering to technical questions :

- GitHub and GitLab
- Apache Spark
- LIME, ExplainX, ExplainerDashboard, SHAP
- PyCaret
- StackOverflow.

There are 149 repositories in my GitHub account [1], spanning over 307 starts. Besides, I made several research datasets openly accessible that came with GitHub, Figshare [2], and via Fraunhofer owncloud.

1. `https://github.com/rezacsedu`
2. `https://figshare.com/`